



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

would have converted into a permanent forest. A neglect of this attention resulted in the complete failure of the project.—GEO. D. FULLER.

**Nitrogen relations of semi-arid soils.**—MCBETH<sup>42</sup> finds that semi-arid soils fail to nitrify dried blood when it is added in 1 per cent quantities. Under the conditions ammonia accumulates in the soil and 50 per cent of the nitrogen may be lost to the air (probably as ammonia) within 6 weeks. When added at ordinary fertilizer rates nitrification is complete. With green manures, especially legumes, nitrification is rapid. Fifty per cent of the nitrogen of the green manure is transformed to nitrates in 30 days. Furrow irrigation leads to the accumulation of the larger part of the nitrate in the surface 6 inches of the soil, and this often results in niter spots. Overhead or basin irrigation gives far better results. Mottled orange leaves show higher water content than checks, and extreme mottling is often, yet not invariably, associated with high nitrate content.—WM. CROCKER.

**Effect of dust on photosynthesis.**—The effect of surface films and dusts on physiological processes in plants has aroused considerable interest in recent years. California citrus vegetation in the neighborhood of cement works becomes covered with cement dust. Since the dry season lasts several months, the dust remains on the leaves for long periods. YOUNG<sup>43</sup> took advantage of this fact to determine the effect of dusts on carbohydrate synthesis. He found that the cement dust in some cases shuts out as much as 80 per cent of the light from the upper surface of the leaf, but this high exclusion of light did not interfere with carbohydrate synthesis. This work bears out in a practical and interesting way that of BROWN and ESCOMBE in showing the small amount of light that is really necessary for carbohydrate synthesis.—CHAS. O. APPLEMAN.

**Nitrogen fixation.**—The question of nitrogen fixation by filamentous fungi has been investigated by DUGGAR and DAVIS<sup>44</sup> with reference to *Aspergillus niger*, *Macrosporium commune*, *Penicillium digitatum*, *P. expansum*, *Glomerella Gossypii*, and *Phoma Betae*. Of these, *Phoma Betae* was the only form which was definitely shown to be capable of fixing free nitrogen. The quantities fixed by this fungus varied from 3.022 to 7.752 mg. per culture of 50 cc. of solution when sugar beet or mangel decoction with added sugar were used as culture media. The authors give a critical review of all the available literature on the subject, and in their own work exercised every precaution to avoid the errors and faulty methods which have led to the numerous conflicting results in the investigations of this problem.—H. HASSELBRING.

<sup>42</sup> MCBETH, I. G., Relation of the transformation and distribution of soil nitrogen to the nutrition of citrus plants. *Jour. Agric. Research* 9:183-252. figs. 19. 1917.

<sup>43</sup> YOUNG, H. D., Studies on the relation of cement dust to citrus vegetation. I. The effect on photosynthesis. *Biochem. Bull.* 5:95-100. 1916.

<sup>44</sup> DUGGAR, B. M., and DAVIS, A. R., Studies in the physiology of the fungi. I. Nitrogen fixation. *Ann. Mo. Bot. Gard.* 3:413-437. 1916.